



# HT201/HT211

Users Manual v1.1



**Includes PLUS CORPORATION™ micro light engine**

Complies with part 15 of the FCC rules. Operation is subject to:

1. This device may not cause harmful interference
2. This device must accept any interference received including interference that may cause undesired operation.

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**WARNING:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER, NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**WARNING:** TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

## IMPORTANT SAFEGUARDS

These safety instructions are to ensure the long life of your projector and to prevent fire and shock. Please read them carefully and heed all warnings.

### Installation

- For best results, use your projector in a darkened room.
- Place the projector on a flat, level surface in a dry area away from dust and moisture or hang it from the ceiling with an approved mount kit.
- Do not place your projector in direct sunlight, near heaters or heat radiating appliances.
- Exposure to direct sunlight, smoke or steam can harm internal components.
- Handle your projector carefully. Dropping or jarring can damage internal components.
- Do not place heavy objects on top of the projector.
- If installing the projector in the ceiling:
  - The ceiling must be strong enough to support the projector.
  - The installation must be in accordance with any local building codes.
  - Qualified Knöll dealer personnel must install the projector.

### Power Supply

- The Projector is designed to operate on a power supply of 100-120 or 220-240 V 50/60 Hz AC. Ensure the mains power fits this requirement before attempting to use your Projector.
- Handle the power cable carefully and avoid excessive bending. A damaged cord can cause electric shock or fire.
- If the projector is not to be used for an extended period of time, disconnect the plug from the power outlet.

### Cleaning

- Unplug the projector before cleaning.
- Clean the cabinet periodically with a damp cloth. If heavily soiled, use a mild detergent. Never use strong detergents or solvents such as alcohol or thinner.
- Use a blower or lens cloth to clean the lens and be careful not to scratch the lens.

### Lamp Replacement

- Be sure to replace the lamp when the Status light comes on. If you continue to use the lamp after 1000 hours of use, the lamp will turn off.
- Allow **a minimum of one minute** to elapse between turning the lamp off and on. High voltage is applied to the lamp immediately when the power is turned on. Turning the power off and quickly back on may shorten the lamp life lamp and result in damage to the projector.

### Fire and Shock Precautions

- Ensure there is sufficient ventilation and the vents are unobstructed to prevent heat buildup inside the Projector. Allow at least 10cm (3”) of space between your projector and a wall.
- Prevent foreign objects such as paper clips and bits of paper from falling into your projector. Do not attempt to retrieve any objects that might fall into your projector. Do not insert any metal objects such as a wire or screwdriver into your projector. If something should fall into your projector, disconnect it immediately and have the object removed by a qualified Knöll service person.
- Do not place any liquids on top of your projector.
- **Do not look into the lens while the projector is on. Serious eye damage could result.**

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## Basic Information

### **Congratulations On Your Purchase of the Knöll Projector!**

The Knöll DLP is one of the very best projectors available today. It enables you to project precise images up to 200 inches across (measured diagonally) from your PC or Macintosh computer (desktop or notebook), VCR, document camera, laser disc player, DVD player, etc. The projector can be placed on a tabletop or cart, or permanently mounted on the ceiling. You may use the projector to project images from behind the screen. The supplied remote control can be used as wireless control and with the supplied mouse receiver to operate the mouse functions on your PC or Macintosh.

### **The features you'll enjoy...**

- **Compatible with following various color systems:**
  - NTSC (U.S. and Canada standard)
  - PAL (Western Europe and Australia/New Zealand standard)
  - SECAM (France and Eastern Europe standard)
  - NTSC4.43 (Middle East country standard)
- **Superior brightness of 800 ANSI lumens with small size and 1.3 kilograms**

The DMD and our own optical design interact in a geometric effect to increase the light usage efficiency. Now you can reproduce the 3 basic colors (RGB) required for color reproduction on a single DMD. That means superior brightness, smaller size and lighter weight.
- **Sharp, clear images**

There is no RGB color separation, and the spaces between the individual pixels are not noticeable. That means sharp and clear reproduction of small characters and figures. Take a closer look and notice the difference in quality!
- **Outstanding beauty when reproducing DVDs and other high picture-quality information sources**

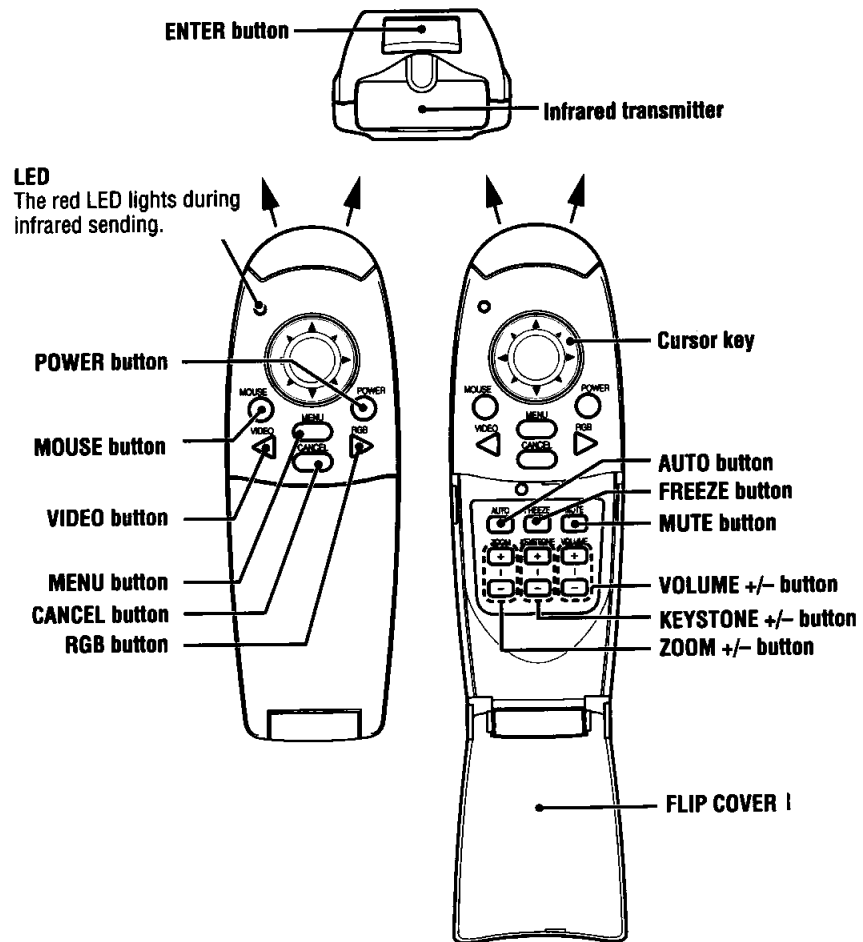
Faithful gray scale reproduction makes for more natural image displays. DVD and other high quality image sources bring out the true display capacity of the Projector.
- **Screen not distorted to a trapezoid (keystoning) when projecting to the height of the line of vision**

Because the projection position is already set to the height of the line of vision, there is no distortion of the screen to a trapezoid. Keystone is variable, centered at 17.3 degrees.
- **Fully compatible with true XGA using advanced intelligent compression technology**

The advanced intelligent compression technology of the HT211 enables it to present clear XGA images without any line omission. The HT201 presents clear S-VGA images.
- **The remote control can be used to operate your PC or Macintosh when the supplied remote mouse receiver is connected.**

## Remote Control Inserting the batteries

- 1) Press firmly and slide the battery cover off.
- 2) Insert the supplied two batteries (size AAA). Ensure that the polarities (+ and -) of the batteries are aligned correctly. Always replace batteries with fresh alkaline type.
- 3) Slip the cover back over the batteries until it snaps into place.



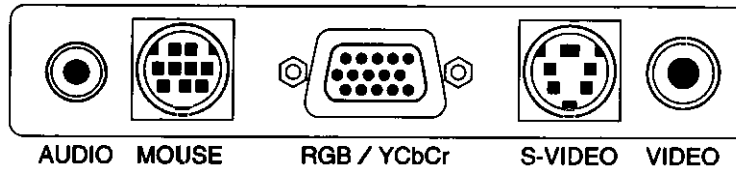
## Notes

- If the remote control gets wet, wipe it dry immediately.
- Avoid excessive heat and humidity.
- If you will not be using the remote control for a long time, remove the batteries.
- Do not mix new and old or different types of batteries.
- There are operations that can only be carried out by remote control. Handle the remote control carefully.

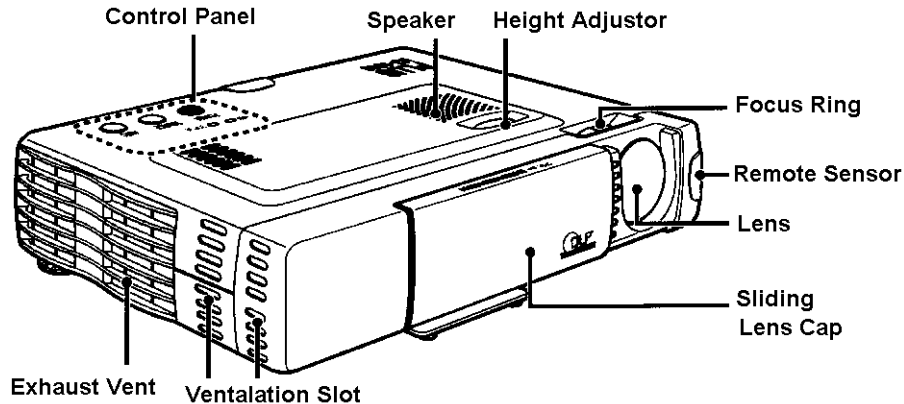
## Remote control effective range

Each side of the projector has a remote sensor. The controllable range is 50 degrees horizontally and 30 degrees vertically relative to a line that is at a right angle to the remote sensor. And the distance between the point of the remote control and remote sensor must be no more than four to five meters (about 15').

## Terminal Connection Panel



## Projector Part Identification



## Installation

The distance from the projector lens to the screen determines the size of the projected image, therefore, you need to consider the place where you set up the projector and screen before making connections. You also need to consider the screen size and height of the unit and screen as other important factors.

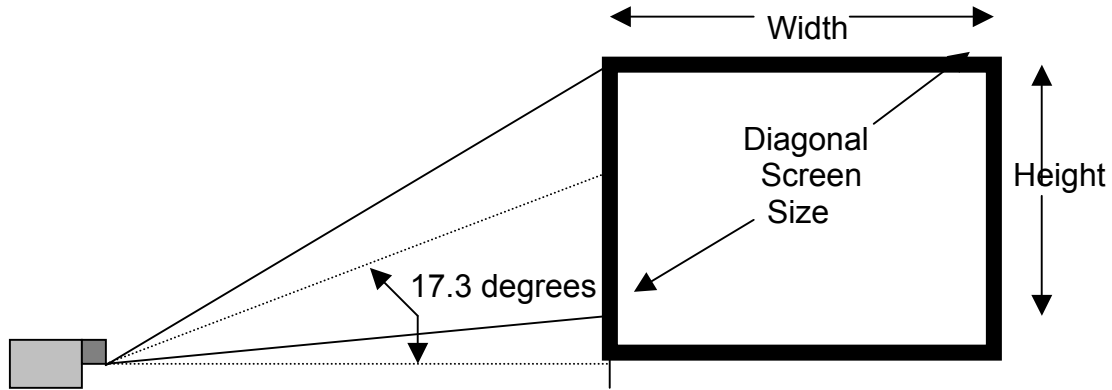
**Tip:** Although not advised, a non-glossy wall may be used as a substitute for a screen.

### **WARNING: Carrying The Projector**

- Ensure **all** cables connecting to the projector are disconnected before moving the projector. When moving the projector, cover the lens with the sliding cap.
- Only use your Projector on a solid flat level surface. If the projector falls to the floor, you can be injured and the projector severely damaged.
- Do not use the Projector where temperatures vary greatly. The projector must be used at temperatures between 5 degree Celsius (41 degree Fahrenheit) and 35 degree Celsius (95 degree Fahrenheit).
- Do not expose the Projector to moisture, dust, or smoke. This will harm the screen image.
- Ensure that you have adequate ventilation around your Projector to allow heat dissipation. Do not cover the vents on the bottom or the side of the projector.

### Projector Positioning

The projected image becomes larger as the distance between the unit and screen increases. The minimum image size is about 36 inches (93cm) diagonally at a distance of about 1.2m (3.9 feet) and the maximum size is about 200 inches (508cm) at a distance of 6.8m (22.3 feet) from the screen. The HT201 and HT211 do not have zoom capability so they must be positioned at the exact distance from the screen.]



Use the following information to position the projector. Horizontally the projector needs to be positioned with the lens-centered left to right

### Projection Distance 4:3 Video Screen

<b>Screen Diagonal</b>	72"	78"	84"	100"	120"	160"	200"
<b>Projection Distance</b>	96.4"	104.4"	112.4"	133.8"	160.6"	214.1"	267.6"
<b>Image Drop Or Rise</b>	8.0"	8.6"	9.3"	11.1"	13.3"	17.7"	22.2"

Projection distance to screen is 1.338 x screen diagonal size (4:3 screens)

Drop or rise is 0.111 x screen diagonal size (4:3 screens)

### Projection Distance 16:9 Video Screen

<b>Screen Diagonal</b>	88.25"	103"	110"	122.5"	146.75"	165.25"	220.25"
<b>Projection Distance</b>	128.5"	150.1"	160.2"	178.4"	213.7"	240.7"	320.8"

Projection distance is 1.457 x screen diagonal size (16:9)

## Connecting Video Equipment

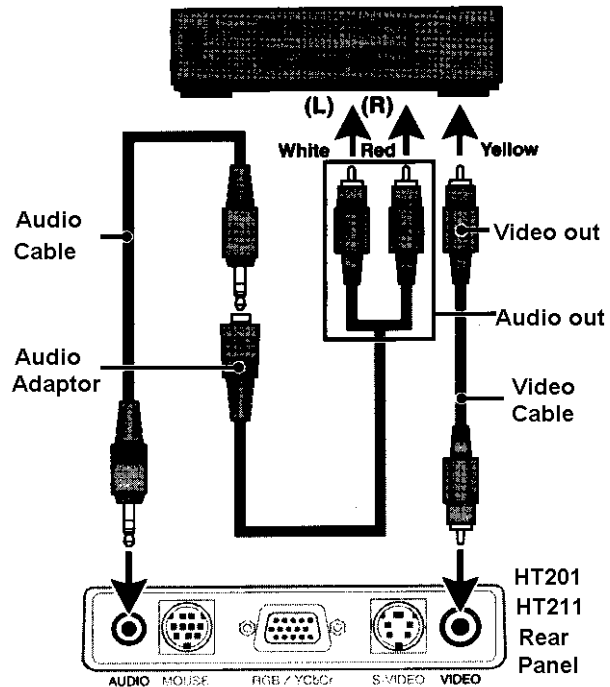
You can connect a document camera, VCR, laser disc player, and DVD player, etc.

### Connecting to the VIDEO IN VIDEO/S-VIDEO JACKS

You can connect up to two pieces of video equipment to the VIDEO IN jacks following the illustration below. Two types of connections can be made. Connect either using the cables indicated in dotted lines or those in gray as shown in the drawing below.

- You can switch the input source (picture) to VIDEO or S-VIDEO even if you connect more than one piece of equipment. S-VIDEO connection provides more vivid color and higher resolution compared to VIDEO connection.
- You can output the sound of one component through the unit speaker even when two components are connected.

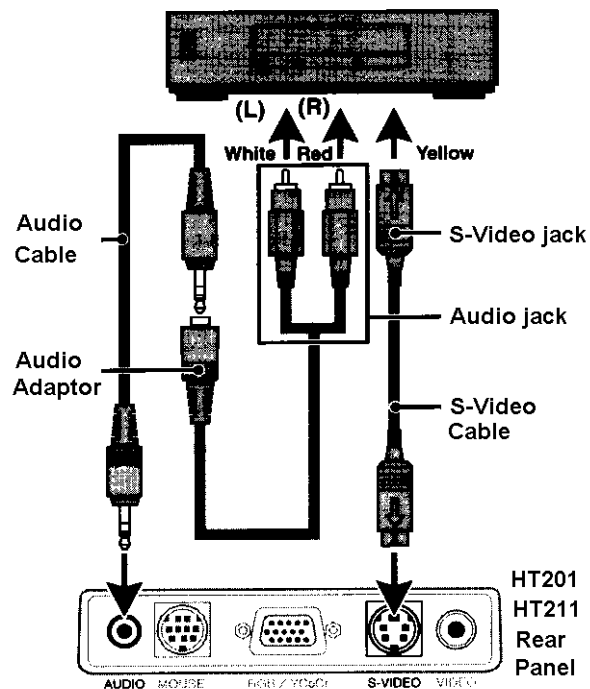
VCR/DVD player/laser disc player, etc.



### Before connecting

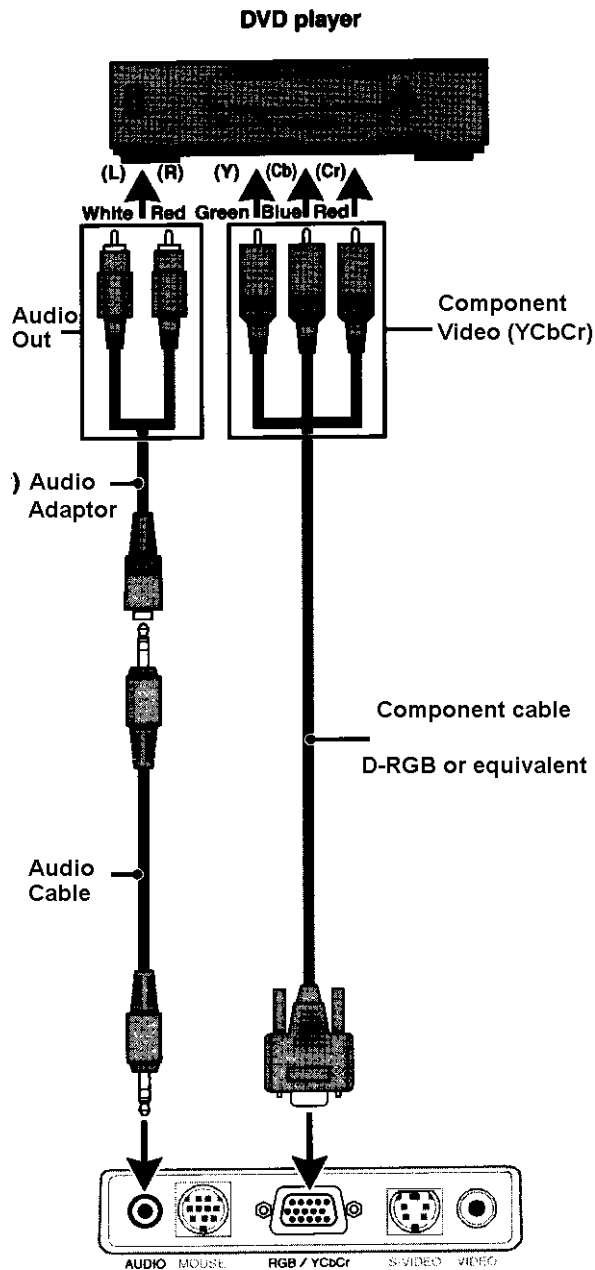
- Turn off the components that are to be connected.
- The unit and computer will be turned on in "Using the Projector". Do not turn on either the computer or unit until you read this section.
- Please also refer to the manual of the video component to be connected.

VCR/DVD player/laser disc player, etc.





## Connecting Component Video Equipment with YCbCr output jacks to the RGB IN connector



You can also connect the video component to the RGB IN connector, if the video component has the component video (YCbCr) signal jacks. This connection may provide a better picture quality than the connections on page 8.

- You can switch the input source to VIDEO, S-VIDEO, or RGB.
- The AUDIO IN jack is for equipment connected to the RGB IN connector.

### Before connecting

- Turn off the components that are to be connected.
- The projector and computer will be turned on in "Using the Projector". Do not turn on either the computer or unit until you read this section.
- Please also refer to the manual of the video component to be connected.

If you are connecting a 5 wire BNC cable to a 15 pin D-sub, you may need three 21-131-0 BNC to RCA adaptors. Connect the 15 pin D-sub into the projector. Connect the red BNC to the Cr output. Connect the green BNC to the Y output. Connect the blue BNC to the Cb output.

The remaining black and gray BNC connectors are not used in this case. When initially displaying component video the color may require adjustment. To adjust the color, using the remote to the "Image Adjust Menu" and adjust the "Hue" Cr and Cb (red and blue) as required.

## Connecting a PC or Macintosh

Connecting a PC or Macintosh to the Projector enables computer images for impressive presentations.

- The following display standards are supported by the HT211 (HT201 may not support some of the higher resolutions):

VGA 640x480 for graphics

VGA 640x400 for graphics

XGA 1024x768

VGA 640x350 for graphics

VGA 720x400 for text

Mac 1024X768

VGA 720x350 for text

SuperVGA 800x600

Macintosh at 640x480

Macintosh at 832x624

- If your PC does not support XGA you will need to install a XGA graphics board. Consult your computer's owner's manual for your XGA configuration. If you need to install a new board, refer to the manual supplied with your new graphics board for installation instructions.

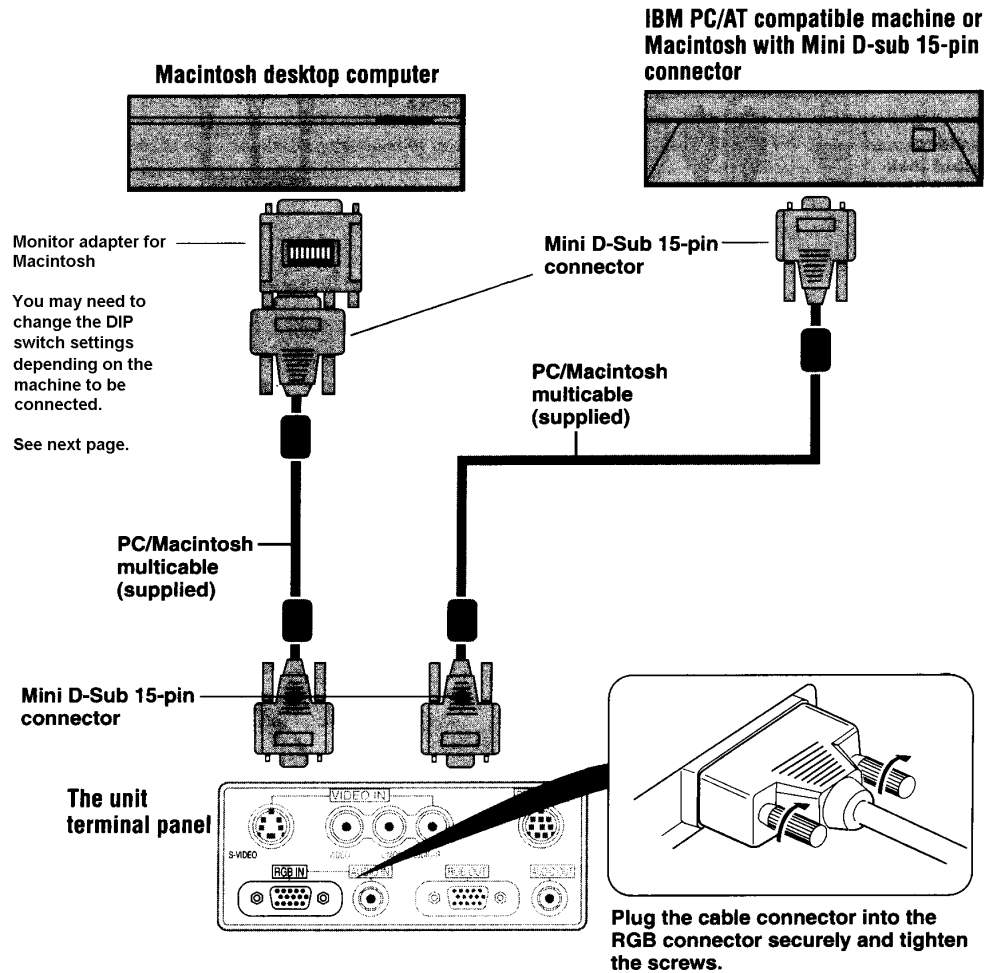
### Notes

- Refer to the owner's manual supplied with your computer for more information about the computer video output requirements and any special identification or configuring required by the projector image and monitor.
- Some Macintosh PowerBooks may need to set the mirroring to off to output 800x600 dot signals. Please consult your PowerBook manual or computer dealer for details.

### Before connecting

- Turn off the components that are to be connected.
- The projector and computer will be turned on in "Using the Projector" on page 13. Do not turn on either the computer or unit until you read this section.
- Please also refer to the manual of the video component to be connected.

**PowerBook Connection** Depending on the model of your PowerBook, the additional Apple video cable adaptor may be required with the above connection.



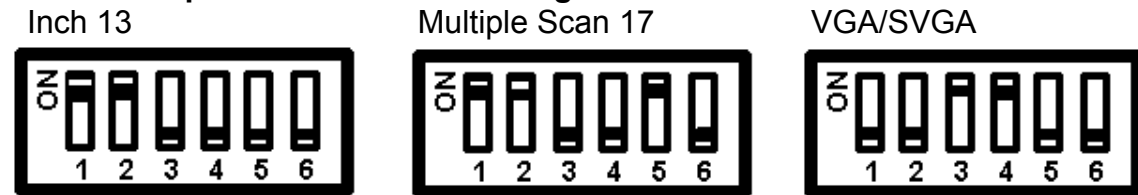
**Modifying the DIP switch (for Macintosh) setting**

Modify the DIP switch setting on the MAC cable as shown below.

**Macintosh adapter cable DIP switch setting (o=ON)**

MONITOR	RESOLUTION	1	2	3	4	5	6
	Multiple scan 21	o	o				o
	Multiple scan 21	o	o			o	
	Multiple scan 21	o	o			o	o
	VGA/SVGA			o	o		
21 Color	1152x870	o	o	o	o		
19 Color	1024x768		o	o			
16 Color	832x624		o		o		
13 Color	640x480	o	o				

**Some examples of DIP switch settings:**



**Using the remote control as a computer mouse - Wireless mouse function**

The supplied remote mouse receiver enables you to operate your computer's mouse functions from the remote control. It is a great way to control your computer-generated presentations.

- The cursor key on the remote control operates the computer mouse functions.
- If a Windows computer is connected, the L-CLICK button on the remote control operates as the computer mouse left click button and the R-CLICK button as the computer mouse right click button.
- If the Macintosh computer is connected, the L-CLICK and R-CLICK buttons operate in the same way as the computer mouse click button.
- While the menu is displayed on the screen (see page 18), the cursor key, L-CLICK and R-CLICK buttons will operate to control the menu.

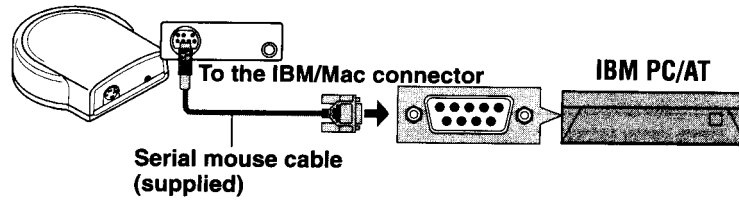
**Before connecting:**

- Turn off the computer, and then remove the current mouse.
- Connect the computer and remote mouse receiver with the supplied serial mouse cable as shown in the above illustration.
- The projector and computer will be turned on as described in "Using the Projector" on page 13. Do not turn on either the computer or unit until you read this section.
- Please also refer to the manual of the computer to be connected.

## Connecting the remote mouse receiver to an IBM PC/AT computer

Connect the IBM/Mac connector on the remote mouse receiver and PC's mouse port with the supplied serial cable.

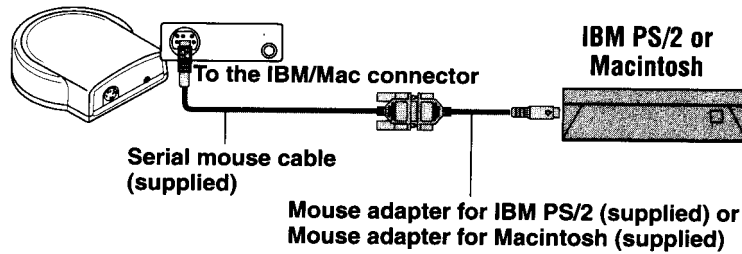
### Remote mouse receiver



## Connecting the remote mouse receiver to an IBM PS/2 or Macintosh computer

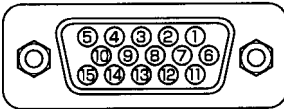
Connect the supplied serial cable to the IBM/Mac connector on the remote mouse receiver. Connect the supplied mouse adapter to the other end of the serial cable and the computer mouse port. Note that two types of mouse adapters are supplied; one is for IBM PS/2 and the other is for Macintosh.

### Remote mouse receiver



## D-Sub Pin Assignments

### PC 15-Pin mini D-Sub



1 Red	6 Red Gnd	11 GND
2 Green	7 Green Gnd	12 No Connection
3 Blue	8 Blue Gnd	13 Horizontal Sync
4 GND	9 N/C	14 Vertical Sync
5 GND	10 Digital Gnd	15 No Connection

## Operation

### Using the Projector

1) Connect the supplied power cable to the projector, then to the wall outlet (the mains). The **POWER** indicator on top of the unit lights in amber.

2) **Press the POWER ON button on the remote control or the POWER button on top of the unit to turn on the unit.**

The POWER indicator on top of the unit turns to green and start blinking. It will take about one minute for the projector to be ready to use. Wait until the indicator stops blinking and lights steadily in green.

**Note:** While the POWER indicator is blinking, the unit doesn't turn off even if you press the POWER OFF button on the remote control or the POWER button on the unit.

3) **Turn on the connected source (computer, VCR, DVD player, etc.).**

If you use a video component, start playback for screen/image adjustment.

4) **Press VIDEO or RGB to select the input source.**

You can also select the input source with the menu operation.

#### Notes

- If the blue, black or focus pattern screen (the background type differs depending on the "BACKGROUND" setting.) is projected, check the following:
  - Is the source is properly connected to the unit?
  - Is the source component or computer turned on?
  - Is the video signals are coming to the projector?
- The video resolution of the connected computer can be changed.

5) **Adjust the position and height of the unit.**

Move the unit to the position where the projected image is horizontally centered to the screen. The internal keystone adjustment can adjust for some horizontal problems, but the best image is obtained when the projector is optimality positioned.

- **When the projected image is offset horizontally**  
Adjust the position of the unit so that the unit is square to the screen
- **When the projected image is offset vertically**  
Adjust the height balance of the unit with the adjusters.

#### Using the adjusters to adjust the height balance

There are two adjusters one on the front and one on the side.

To lower the position of the screen, pull out the folded leg of the rear adjuster.

For the side adjuster, rotate the adjuster until the unit is horizontally parallel to the screen.

6) **Adjust the focus with the focus ring and if required use the keystone adjustment to parallel the side of the image with the screen.**

7) **Change the unit setting to suit to the projecting method and selected source as described in step 4.**

- **Select the type of projection**  
If the projected image is horizontally reversed or upside down, change the projection type. See page 16.
- **If the component video signal output jacks of the video component are connected to the RGB IN connector, set the RGB input to YCbCr" in the menu.**  
This setting can provide a better picture image.

- Adjust the projected image from the source connected to the RGB IN connector. The resolutions most suitable to the incoming signals will automatically be selected. However, if any vertical banding, noise, dot interference, or crosstalk appears on the screen, adjust "PICTURE ADJ," then "FINE PICTURE" using the menus. You can also adjust the horizontal and vertical position of the image.

**8) Adjust the picture elements and select the picture type.**

Adjust the picture elements; select the picture type according to the video contents and 16:9.

**9) Start using the Projector.**

The following functions are available while using the Projector:

- **Adjusting the speaker volume,**
- **Freezing a moving picture, and**
- **Enlarging the picture.**

**Image Turns Off**

If "POWER OFF" is set to "ON", the image will be turned off if the unit has been projecting a blank screen for five minutes with an RGB input source.

If the image is suddenly turned off while projecting a computer image, the computer's screen saver or the unit's POWER OFF function may be activated.

**Turning the Projector Off**

1)

Operating with the remote control:

**Press the POWER OFF button a little bit longer.**

Operating with the projector keypad

**1. Press the POWER button.**

"POWER OFF/ENTER" appears on the screen.

**2. Press ENTER**

When the projector is turned off, the POWER indicator will start blinking then turn to amber in about one minute.

**\*\*\*Never turn off the POWER switch (main power) while the POWER indicator is blinking.\*\*\***

**2) If the POWER indicator is lit in amber, press the "O" side of the POWER switch (main power) on the projector back.**

The POWER indicator goes out.

Disconnect the power cord if it is not to be used for an extended period.

**Changing computer's video resolutions**

Depending on your computer's graphic capability, you may be able to select one of several resolutions. Generally a computer- either a PC or Macintosh- with 1 MB VRAM will run:

640 x 480 at 16.7 million colors (24 bit True color)

800 x 600 at 65,000 colors.

1024 x 768 at 256 colors.

As the resolution increases, the number of colors you can run decreases. With 2 MB VRAM a computer will run:

640 x 480 at 16.7 million colors (24 bit True color).

800 x 600 at 16.7 million colors (24 bit True color).

1024 x 768 at 65,000 colors.

1280 x 1024 at 256 colors.

## **Windows 95**

There are two methods you can use to change your resolution.

### **Method 1**

1. Move your cursor to the background image and click.
2. In the "Properties" menu, select "Settings."
3. Change your resolution and click "OK."
4. You may be asked to reboot for the changes to take effect, or a message saying, "Windows is about to resize your display" may appear. You'll be asked if you want to keep your settings. Select "Yes."

### **Method 2**

1. Click on your "My Computer" icon.
2. Open "Control Panel" and select "Display."
3. Change your resolution and click "OK." After the new resolution is selected.
4. You may be asked to reboot for the changes to take effect, or a message saying, "Windows is about to resize your display" may appear. You'll be asked if you want to keep your settings. Select "Yes."

## **Windows 3.1**

1. Click on the "Main" icon and open "Control Panel."
2. Select "Change System Settings" and click on "Option."
3. Choose "Change Display Settings."
4. Select the resolution you want.
5. Choose the current or desired drive.
6. Restart Windows for the changes to take effect.

## **Macintosh**

1. Under the Apple menu, select "Control Panels" and open "Monitors."
2. Click and open "Options."
3. Select your new resolution and click "OK."

## **Notebook computers and resolution standards**

This Projector is designed to project industry-standardized video such as VESA (Video Electronics Standards Association) or VGA (Video Graphics Array). Notebook computers do not use industry standards. They use whatever timing is necessary to match their local LCD display. The end result is typically not standard. By turning off your notebook's display, the timing parameters are a bit more like the real VESA or VGA signal.

## **Adjusting the volume of the projector speaker**

**Press VOLUME + to increase the volume or - to decrease.**

The volume can also be adjusted with the menu operation.

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## **Turning off the image and muting the sound temporarily**

**Press the MUTE button.** The image will turn off and the sound will be muted at the same time.

To restore the picture and sound, press the MUTE button again.

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## **Freezing a moving picture**

You can capture the desired frame of the moving picture.

**Press the FREEZE button.** A still image of the current frame will be displayed. To restore the present picture, press the button again.

**Tip:** The still picture can also be enlarged.

## Enlarging the picture

You can enlarge a portion of the picture up to four times its normal size. The overall picture size will remain the same and the enlarged picture will completely fill the overall picture frame.

**Press ZOOM +.** While the button is pressed the picture is enlarged until it becomes a maximum of four times the normal size. Release the button at the desired size.

### To reduce the size of the enlarged picture

**Press ZOOM -.** While the button is pressed the picture is reduced until it becomes the normal size.

### To move to the desired portion of the enlarged picture

- 1) **Press POSITION.** The button lights in red. If you don't proceed to step 2 within ten seconds, the button goes off.
- 2) **Press the desired portion of the cursor key while POSITION lights.**  
The moving directions are indicated by the eight triangle marks on the cursor key.  
The picture will move in the direction pointed by the mark where you are pressing.  
**Note:** The full size image cannot be moved because the whole image is fully displayed.

## Menu operation-

### Selecting the input source with the remote

Press Video or RGB. For S-Video press the video button twice.

### Selecting menu options

- 1) The normal menu will be displayed when the flip cover is closed and the menu button is pressed. To go to the advanced menu, open the flip cover, and then press the menu button.
- 2) Adjust the normal menu features for your taste, the room brightness and source material and content.
- 3) Use the advanced menu to adjust “one time” adjustments such as color temp., gamma RGB type (normal or component), ceiling or floor, front or rear projection, language, auto power on/off etc.

### Selecting Ceiling or Floor, Front or Rear projection

- 1) Turn the projector on and have a source playing with an image on the screen.
- 2) Open the flip cover and press the menu button.
- 3) Use the left/right cursor to select “SETUP”
- 4) When the SETUP menu is displayed, use the up/down cursor to select “PROJECTION” then press the enter (underneath) button.
- 5) Use the up/down cursor button to select the projection type listed below, then press enter and leave the setup menu.

Projection Type	HT201/HT211 Menu
Floor, front projection	Normal
Floor, rear projection	Reversed horizontally
Ceiling, front projection	Reversed vertically
Ceiling, rear projection	Reversed vertically and horizontally



## Setting "INPUT MODE" to "YCbCr" or Component Video

When you have connected the component video (YCbCr) signal output jacks of the video component to the RGB IN connector on the unit, set the projector to "YCbCr" to obtain better picture quality.

1. Turn the component video image on.
2. Open the flip cover on the remote and press the menu button (to select the advanced menu).
3. Press the left/right cursor to select "COLOR"
4. Press the up/down cursor to select "SOURCE CHANGE"

Use the left/right cursor to change the source from RGB to YCbCr.

## Adjusting the image from the source connected to the RGB IN connector

The Projector selects the most suitable resolutions as shown in the "Timing Chart" below according to the incoming signals from the RGB IN connector (When "RGB" is set to "STANDARD". However, you may need manual adjustment depending on the computer or video component connected to the RGB IN connector. If you have any of vertical banding, noise, dot interference, or crosstalk on the projected picture, adjust clock frequency with "PICTURE ADJ" then clock phase with "FINE PICTURE" (see next page). You can also adjust the horizontal and vertical position of the image.

## Changing Aspect Ratio

The aspect ratio can be set individually for each input

1. Select the input to the desired video source.
2. Open the flip cover and press the menu button
3. Use the left/right cursor to select "VIEW"
4. Display the image then use the up/down cursor to select "ASPECT"
5. Use the left right cursor to set the aspect ratio. Aspect ratios setting are shown below.

Aspect Ratio Type	Means
Real	Input signal displayed without pixel replacement
Auto	Projection after automatic input signal zoom in/zoom out
Direct	Original aspect ratio of the image is maintained at all times
4:3 – 16:9	4:3 aspect ratio images are projected after conversion to 16:9

## Adjusting the image from the source connected to the RGB IN connector

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### Timing Chart

	Signal	Resolution	H. Sync. (kHz)	V. Sync. (Hz)	Dot Clock (MHz)
1	NTSC	640 x 480	15.734	59.94	-
2	PAL	768 x 576	15.625	50	-
3	SECAM	768 x 576	15.625	50	-
4	VESA	640 x 350	37.86	85.08	31.5
5	Mac	640 x 400	35	66	30.24
6	IBM	640 X 400	31.47	70	25.175
7	VESA	640 X 400	37.86	85.08	31.5
8	VESA	640 X 480	31.47	59.94	25.175
9	IBM	640 X 480	31.47	60	25.175
10	Mac	640 X 480	31.47	60	25.175
11	Mac	640 X 480	34.97	66.67	31.334
12	Mac	640 X 480	35	66.67	30.24
13	VESA	640 X 480	37.86	72.81	31.5
14	VESA	640 X 480	37.5	75	31.5
15	IBM	640 X 480	39.375	75	31.49
16	VESA	640 X 480	43.269	85.01	36
17	IBM	720 X 350	39.44	87.85	35.5
18	IBM	720 X 350	31.469	70.09	28.322
19	IBM	720 X 400	31.469	70.09	28.322
20	VESA	720 X 400	37.927	85.04	35.5
21	IBM	720 X 400	39.375	87.7	35.5
22	VESA	800 X 600	35.16	56.25	36
23	VESA	800 X 600	37.879	60.32	40
24	VESA	800 X 600	48.077	72.19	50
25	VESA	800 X 600	46.88	75	49.5
26	VESA	800 X 600	53.674	85.06	56.25
27	Mac	832 X 624	49.725	74.55	57.283 *
28	VESA	1024 X 768	48.363	60	65 *
29	VESA	1024 X 768	57.476	70.07	75
30	IBM	1024 X 768	58.131	72.03	79
31	Mac	1024 X 768	60.241	74.93	80 *
32	VESA	1024 X 768	60.023	75.03	78.75 *
33	Mac19	1024 X 768	74.93	60.241	80
34	NEC	1120 X 750	60.06	50.025	60.06
34	VESA	1280 X 960	85	85.938	148.5
36	Mac	1280 X 1024	60.38	64.31	107
37	NEC	1280 X 1024	59.93	64.603	107.5
38	Mac	1280 X 1024	69.89	74.882	118.5
39	HP	1280 X 1024	72.01	78.125	135
40	VESA	1280 X 1024	74.12	78.855	135
41	SUN	1280 X 1024	76.11	81.13	135

\* AccuBlend TM

The resolution of the Data Project is 1024 x 768. Other resolution images (e.g. 1280 x 1024) are compressed into 1024 x 768. In such a case, projected letters and lines on the screen might appear unevenly.

## Adjusting the picture elements

The picture elements such as brightness, contrast, white balance, and so on can be adjusted individually for each input source. The adjustable items vary depending on the input source and “INPUT MODE” setting. color balance.

## Manual Adjustment of Computer Images

### Adjusting clock frequency and phase (if the image is unstable or flickering)

1. Select the **RGB** input (with the computer attached and on).
2. Press the **MENU** button to display the main menu. Then press the cursor </> keys to select **IMAGE**.
3. Press the cursor up/down keys to select **PICTURE ADJ**.
4. Press the cursor</> keys and adjust the image width in relation to the screen (Adjustment is performed in dot units. Adjust to the position where the vertical flicker disappears).
5. Press the cursor up/down keys to select **FINE PICTURE**.
6. Press the cursor </> keys and adjust to minimize image noise, flicker, color variations, etc.

### Adjusting position of the image

1. Perform steps 1-6 for adjusting the clock frequency and phase above.
  2. Press the cursor up/down keys and select **POSITION**.
  3. Press the cursor up/down and </> keys to adjust the horizontal and vertical position.
- 

## Checking hours of lamp use

The lamp housing must be replaced after 1000 hours of use. When 1000 hours have elapsed the STATUS indicator will light in red. The projector will not turn on if 1100 hours of lamp use have been exceeded because the lamp could blow up causing injury or damage not covered by the warranty. Periodically check hours of lamp use in the menu so that you will have time to purchase a new lamp housing before the current one is expended.

1. Press MENU to display the main menu.
2. Press the cursor left/right to select “INFORMATION.”
3. The lamp usage in hours is displayed.

## Resetting the lamp use hours to zero

You need to reset the lamp use hours to zero after replacing the lamp housing.

1. Carry out the steps above.
2. Press menu button and use the left/right cursor to display “INFORMATION”
3. When the “INFORMATION” menu appears, press the up/down cursor to select “RESET”, then press the ENTER button.
4. If the ENTER button is not used during the reset, press the CANCEL button.

## Specifications

### Optical

DMD TM	Single Chip Digital Micro Device (DMD), 1024x768 pixels
	Single Chip Digital Micro Device (DMD), 800x600 pixels
Lens	Manual focus F3.0 f=23mm
Lamp	Model 28-631 high performance compact lamp
Image Size	914 to 5080mm (36 to 200 inches) diagonal
Projection Distance	1.2 to 6.8m
Light Output	800 ANSI lumens (normally white)
Contrast Ratio	800:1
Color Temperature	7000 Kelvin

### Electrical

Inputs	Video (NTSC / PAL / SECAM / NTSC4.43) RGB (H:15 to 91 kHz, V:50 to 85 Hz)
Color Reproduction	Full color, 16.7 million colors simultaneously.
Horizontal Resolution	NTSC 550, PAL 550, SECAM 350, NTSC4.43 350 TV lines RGB 1024 dots horizontal, 768 dots vertical
Power Requirement	100 to 120/220 to 240 VAC, 50/60 Hz; 180 watts

### Mechanical

Dimensions	23.0cm (W) x 4.8cm (H) x 17.7cm (D)
Net Weight	1.3kg/3.0 lbs
Operational Temperatures	<b>Data projector:</b> 5 degree to 35 degree Celsius (41 degree to 95 degree Fahrenheit), 30 to 85% humidity <b>Remote control:</b> 0 degree to 60 degree Celsius (32 degree to 140 degree Fahrenheit) <b>Remote mouse receiver:</b> 0 degree to 60 degree Celsius (32 degree to 140 degree Fahrenheit)
Regulations	UL Approved (UL 1950, CSA 950) Meets FCC Class A requirements Meets EMC Directive (EN55022, EN55024) Meets Low Voltage Directive (EN60950) CE Approved for EU

## Troubleshooting: Common Problems & Solutions

<b><i>Problem</i></b>	<b><i>Check These Items</i></b>
<i>Does not turn on</i>	<p><b><i>Check that the cord is plugged in with power at that outlet</i></b></p> <p><b><i>Slide lamp cover off lens</i></b></p> <p><b><i>Check the status light to see if the projector has overheated or the lamp usage exceeds 1100 hours.</i></b></p>
<i>No picture</i>	<p><b><i>Use remote buttons to select correct source (Video, S-Video, or RGB).</i></b></p> <p><b><i>Ensure your cables are connected properly.</i></b></p> <p><b><i>Adjust the brightness and contrast.</i></b></p> <p><b><i>Slide lamp cover off lens</i></b></p> <p><b><i>Is the STATUS indicator blinking?</i></b></p>
<i>Image isn't square to the screen</i>	<b><i>Adjust keystone or projector angle to improve its angle to the screen.</i></b>
<i>Picture is blurred</i>	<p><b><i>Adjust the focus.</i></b></p> <p><b><i>Reposition the projector to improve its angle to the screen.</i></b></p> <p><b><i>Ensure that the distance between the projector and screen is within the adjustment range of the lens</i></b></p> <p><b><i>Is lens dirty or have condensation on it?</i></b></p>
<i>Remote control does not work</i>	<p><b><i>Install new batteries. Low batteries may be insufficient to generate IR commands.</i></b></p> <p><b><i>Make sure there are no obstacles between you and the projector.</i></b></p> <p><b><i>Stand within 13 feet (4m) of the projector.</i></b></p>
<i>The STATUS indicator is lit or blinking</i>	<b><i>See the Status Light message chart on the next page.</i></b>
<i>Cross color in RGB mode</i>	<b><i>If "Auto Picture" is off, turn it on. If "Auto Picture" is on, turn it off. Balance the image with the Picture Adjustment icon and Fine Picture Adjustment icon</i></b>

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**When the STATUS indicator on the projector keypad lights or blinks**  
**Status Light Message**

<i>Condition</i>	<i>Status</i>
<i>OFF</i>	<i>Normal</i>
<i>On Continually</i>	<i>The projector lamp has exceeded 1000 hours of operation and should be replaced.</i>
<i>Blinking Very Rapidly (On and off in a cycle of 1 sec.)</i>	<i>The lamp housing is not correctly installed. Install it correctly.</i>
<i>Blinking Rapidly (On and off in a cycle of 4 sec.)</i>	<p><i>The temperature protector has been triggered. If the room temperature is high, move the projector to a cool location. If the temperature within the projector is high, check the cooling fan ventilation hole and the ventilation hole on the bottom of the projector. If any holes are blocked, remove whatever is blocking them.</i></p> <p><i>The temperature protector has been triggered. If you switch the main Power switch Off, then immediately switch it On again; sometimes the power does not come on. If this happens, wait one minute, and then switch the power On again.</i></p> <p><i>The lamp lighting voltage error detection protector has been triggered. Wait at least one minute before switching it on again. If this does not solve the problem, please contact your dealer.</i></p>
<i>Blinking Slowly (On and off in a cycle of 8 sec.)</i>	<i>The cooling fan has stopped. Contact your Knoll dealer for service.</i>
<i>Blinking Very Slowly (On and off in a cycle of 12 sec.)</i>	<p><i>The lamp is not turned on.</i></p> <p><i>The projector was turned off and back on too quickly. Turn off the projector, wait one minute, then turn the projector back on. Or the lamp is burnt out.</i></p>

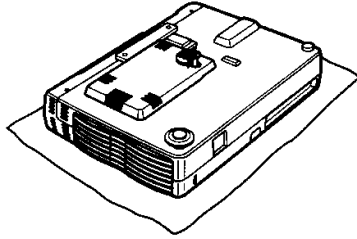
**Replacing the lamp housing**

After the lamp has been operating for 1000 hours or longer, the STATUS indicator on the control panel will light and “LAMP USAGE” icon, which shows hours of total lamp use, will be displayed on the screen. When this happen, turn off the unit and replace the lamp housing with new one. The unit will not be go on after 1100 hours. (It will go off if it is in use.)

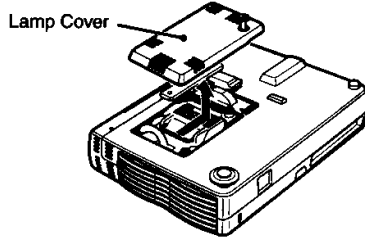
**\*\*\*CAUTION\*\*\***

- **DO NOT TOUCH THE LAMP** immediately after it has been used. It will be extremely hot. Allow at least one hour for the lamp to cool before handling.
- **DO NOT LOOSEN ANY SCREWS** except for those mentioned in the instructions below. There is danger of electric shock.

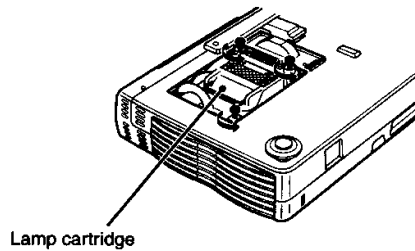
**Step 3**



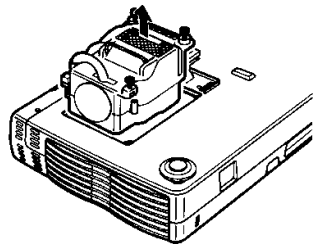
**Step 4**



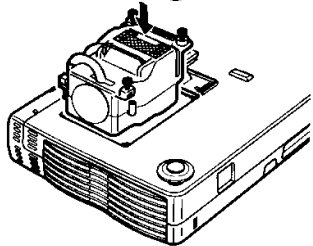
**Step 5**



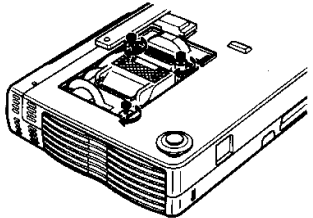
**Step 6**



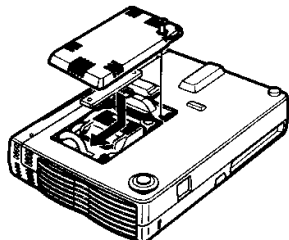
**Step 7**



**Step 8**



**Step 9**



## Lamp Replacement Procedure

1. Switch off the main power and unplug the power cord.
2. Wait at least one hour for the lamp to cool.
3. Turn the unit upside down carefully.
4. Loosen the lamp cover securing screw.
5. Slide the lamp cover in the direction of the arrow and remove it.

**CAUTION:** Do not use a lamp housing other than the Knoll replacement lamp housing. Order this from your Knoll dealer using your projector's model number (see "Note" below).

6. Loosen the three lamp housing securing screws. (This projector has a safety switch.)
7. Hold the handle then pull the lamp housing upward to remove it.
8. Install the new lamp housing.
9. Secure the lamp housing with the three screws.
10. Replace and secure the lamp cover with the securing screw.
11. Return the unit to the normal position, connect the power cord, and turn on the unit.
12. Reset the lamp time. See "Resetting the lamp use hours to zero".

**Note:**

*When the lamp usage time reaches 1100 hours, it becomes impossible to switch on the power and menus are not displayed. In this case, press the remote control POWER OFF button for at least 10 seconds in the standby mode. It is possible to confirm whether it has been reset or not by checking whether the STATUS indicator is extinguished.*

*Obtain a replacement lamp from your dealer where the projector was purchased. When ordering a replacement lamp, specify the correct replacement lamp – Product code 28-631.*

**Knoll Systems**

145 Tye Drive Point Roberts, WA USA 98281  
11791 Machrina Way, Richmond BC Canada  
V7A 4V3

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